

09/407,581

REMARKS

Claims 1-7, 10-13, 15-16, 18-19 and 43 are pending. The Applicants respectfully request the Examiner to reconsider the rejections in view of amendments to the claims now presented and the following remarks.

Introduction

The Applicant respectfully begins by pointing out that the current invention is fundamentally related to the non-destructive ability to monitor *in situ* properties of materials integral to electronic devices, e.g., semiconductors, integrated circuits, and data storage drives, in a fast high-throughput manner during manufacturing or during the operation of the device. Particularly, methods of the current invention are drawn to the ability to *directly* monitor gas phase, e.g., the outgassing of materials and / or environment of said materials (e.g. matrix), by means of a multisensor array comprising, for example, at least one solid-state gas sensor combined with multivariate analysis to provide a properties "fingerprint" of the material. The method of the invention particularly enables the direct detection of minute quantities of offgassing volatiles, i.e., at least one odorous or volatile chemical species. Methods of the present invention are particularly useful for directly monitoring gas-phase properties of finished products, e.g., electronic components including "packaged" integrated circuits as well as related monitoring of properties indicative of performance during operation. Devices with temperature-critical operation, for example, can be monitored by detecting changes in gas concentration or flow rates. Spec., e.g., p.12, lines 17-18. The Applicant respectfully submits that there is no prior art which applies gas multisensor arrays combined with multivariate analysis to the monitoring of properties of electronic devices. Specification, e.g., p.9, lines 9-10.

The Applicant respectfully highlights to the Examiner that, in sharp contrast to the invention now defined, the disclosure of Lewis, *et al.*, '329, however, is limited to fluid interfaces, i.e., the measurement of partition coefficients between liquid and gas phases.

09/407,581

Moreover, not to mention the necessarily increased time response, the Lewis, *et al.*, '329 methods are not suitable for the applications of the present invention.

Rejections under 35 USC §112 ¶2

The Applicant respectfully points out that the term "human paneling", as employed in claim 6 now presented, is well-known to those of ordinary skill in the art in the field at the time of the invention to fundamentally refer to human inspection or evaluation, for example, in a quality control step.

The term "near-field probe" in claim 7 is now preceded by the word "a" and followed by the word "sensor", i.e., "a near-field probe sensor".

Claim 11 is now amended to remove the indication of a Markush group.

Claim 15 is now amended to recite "wherein the electronic device comprises a circuit board or a multichip module".

The Applicant, accordingly, respectfully requests the Examiner to withdraw the rejections.

Rejection under 35 USC §102(e)

The subject matter of claims 1-13, 15-17 and 43 is rejected under 35 USC §102(e) as allegedly disclosed (anticipated) by Lewis, *et al.*, U.S. Patent No. 6,387,329 ('329) (filed November 16, 1999).

The Applicant respectfully points out that since the patent application corresponding to the Lewis, *et al.*, '329 patent was filed November 16, 1999 (i.e., after the Applicant's filing date), it is not *per se* legally available as a reference under 35 USC §102(e). The Applicant respectfully requests the Examiner to confirm the effective filing date of the subject matter alleged to anticipate (i.e., contained within the corresponding provisional applications) so that the Applicant is able to evaluate the necessity of a rule 131 Affidavit to demonstrate conception of the subject matter now claimed. However, even if the Lewis, *et al.*, '329 disclosure is available as a reference, anticipation under 35

09/407,581

U.S.C. § 102(e) indeed requires a finding that each and every limitation is found in the single prior art reference.¹ In other words, each claim alleged to be anticipated must read-on or encompass the *original Lewis, et al.*, '329 disclosure.

The Applicant respectfully submits, as pointed out *supra*, that, in sharp contrast to the invention now defined, the disclosure of *Lewis, et al.*, '329, is limited to fluid interfaces, i.e., the measurement of partition coefficients between liquid and gas phases.² However, the instant claims now presented require a non-destructive *in situ* method for directly monitoring an electronic device comprising measuring at least one outgas or volatile organic compound by means of a multisensor array comprising at least one solid-state gas sensor. The Applicant respectfully highlights the paramount distinction from the disclosure of *Lewis, et al.*, '329 in that the method of the present invention is expressly limited to "monitoring an electronic device", i.e., the non-destructive ability to monitor *in situ* properties of materials integral to electronic devices, e.g., semiconductors, integrated circuits, and data storage drives. Accordingly, since the claims now presented do not encompass any embodiment within the disclosure of *Lewis, et al.*, '329,³ the '329 disclosure cannot, as a matter of law, anticipate the invention now defined.

The Applicant, accordingly, respectfully requests the Examiner to withdraw the rejections.

Rejection under 35 USC §103

The subject matter of claims 18 and 19 is rejected under 35 USC §103(a) as allegedly obvious over *Lewis, et al.*, '329 in view of *Colvin, et al.*, U.S. Patent No. 6,330,464 ('464). *Lewis*'329 is alleged to teach the invention as claimed, except for the circuit board being in a soldering operation.

¹ *Celeritas Techs. Inc. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1360, 47 USPQ2d 1516, 1522 (Fed. Cir. 1998).

² The Examiner is respectfully referred to '329, col.1, lines 21-25.

³ The Examiner is respectfully referred, for example, to the '329 laundry list of "Sensor Applications" col.7 line 54 - col.8, line 54.

09/407,581

The subject matter and specific limitations of the claims now presented herewith, as highlighted *supra*, are not disclosed by Lewis, *et al.*, '329. Moreover, the specific *application*, i.e., limitation, of the method now claimed is for an entirely different purpose than taught by Lewis, *et al.* If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); MPEP §2143.01. Accordingly, the requisite motivation to modify embodiments of Lewis, *et al.*, '329 is not present. Furthermore, as respectfully emphasized *supra*, no embodiments within the disclosure of Lewis, *et al.*, '329 fall within the scope of any of the claims now presented.

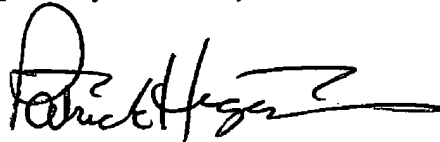
The Applicant, accordingly, respectfully requests the Examiner to withdraw the rejections.

* * *

For all the foregoing reasons, the Applicants submit that Claims /// are in condition for allowance. Early action toward this end is courteously solicited. *The Examiner is kindly encouraged to telephone the undersigned in order to expedite any detail of the prosecution.*

The Commissioner is authorized to charge the normal fee under 37 CFR §1.17(a) for a one (1) month extension of time under 37 CFR §1.136(a) or any deficiency in connection herewith to Deposit Account No. 13-2165.

Respectfully submitted,



Patrick H. Higgins
Reg. No. 39,709
Attorney for Applicant

Date: February 10, 2003

09/407,581

MATHEWS, COLLINS, SHEPHERD & McKAY, P.A.
100 Thanet Circle, Suite 306
Princeton, New Jersey 08540-3662
Telephone: (609) 924-8555
Telecopier: (609) 924-3036